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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,851

03/31/2004

Michael F. Cohen

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EXAMINER

BITAR, NANCY

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PAPER NUMBER

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MAIL DATE

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02/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/814,851	Applicant(s) COHEN ET AL.	
	Examiner Nancy Bitar	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/31/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/5/2007 have been fully considered.
2. Claims 1 and 3-19 are pending. Claims 2 and 20-25 are cancelled.
3. Applicant argument with respect to figure 9 of Mittal et al does not teach segmenting 3D based on color as pointed out by Examiner it is true that the primary reference does not explicitly teaches the color segmentation , however , the claims does not distinguish over the prior art. The secondary reference teaches color segmentation so the 103 rejection still meets claims 1-19. DeMenthon teaches spatio-temporal segmentation of a video where the clustering provides color segmentation and motion segmentation (see section 1, page 2 paragraph 1, and figure 1).
4. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Mittal teaches the spatio temporal domain and the invariant transformation is determined by measuring image pixel intensity with respect to color and examiner used the secondary reference DeMenthon to clearly explain that the segmentation was based on color as required by the claims language.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable by Mittal et al (US 2005/0286764) in view of DeMenthon et al (Spatio-Temporal Segmentation of Video by Hierarchical Mean Shift Analysis, July 2002)

As to claim 1, Mittal teaches a method for stylizing video, comprising: performing a spatio-temporal segmentation analysis on the video to identify three dimensional volumes (optical flow computation, spatio-temporal domain, paragraph [0012]) of contiguous pixels having a similar color; receiving an input identifying a group of the three dimensional volumes; and identifying the group of three dimensional volumes as a single semantic region (forming a background model in a high-dimensional space, paragraph [0019]). Note that the optical flow constraint equation is applied at a given point defined by a spatial location and time to obtain respective constraints; applying an error function to combine the respective constraints from each the given point within a defined region for deriving a characteristic function; deriving a motion estimate from the characteristic function; and comparing the motion estimate with a given

uncertainty model so as to derive a figure of uncertainty for optical flow measurement data, paragraph [0022], paragraph [0078]). While Mittal et al meets a number of the limitations of the claimed invention, as pointed out more fully above, Mittal fails to specifically teach the spatio-temporal segmentation having a similar color by mean shift analysis and . Specifically, DeMenthon et al. teaches the use of spatio temporal segmentation of video sequences by adopting a hierarchical clustering method, which operates by repeatedly applying mean shift analysis over increasingly high ranges and perform a 3D segmentation of the video stack where a foreground object is in front of a similar color background object. Moreover, DeMenthon teaches segment the spatio temporal pixel volume of the video stack with respect to feature component including color component, frame coordinates and optical flow components. Because the segmentation analysis of DeMenthon includes similar color segmentation and motion segmentation, as well as consistent labeling of regions over time which amounts to region tracking. It would have been obvious to one of ordinary skill in the art to use the spatio-temporal segmentation analysis with similar color in Mittal in order to provide a hierarchical segmentation of data thus obtaining cleaner boundaries and help in video indexing and retrieval and a better video quality. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

As to claim 3, Mittal teaches the method of claim 1, wherein the spatio-temporal segmentation analysis comprises an anisotropic kernel mean shift segmentation procedure (anisotropic non-linear filters can be considered, paragraph [0129])

As to claim 4, Mittal teaches the method of claim 1, wherein the input comprises an interactive user input (the user determines the degree of sensitivity, paragraph [0188]).

As to claim 5, Mittal teaches the method of claim 1, wherein the three dimensional volumes of contiguous pixels comprise segments (apparatus for dividing the image into blocks, paragraph [0026]).

As to claim 6, Mittal teaches the method of claim 5, wherein the user input comprises outlining a plurality of segments (apparatus for dividing the image into blocks, paragraph [0026]).

As to claim 7, teaches the method of claim 6, wherein the outlining (morphological operation) is performed on a number of keyframes of the video, the number of keyframes being fewer than a total number of frames of the video (note that the image is divided into blocks, and for each block, PCA is performed using a certain number of previous frames, paragraph [0026-0028], figure 1)

As to claim 8, teaches the method of claim 7, wherein additional segments on frames of the video other than keyframes are identified by determining a relationship of the additional segments to the segments outlined on the keyframes, (figures 9-11; paragraph [0079].

As to claim 9 and 10, Mittal teaches relationship comprises at least a portion of the additional segments being enclosed by one or more of the segments outlined on the keyframes and at least a portion comprises at least a majority of pixels of the additional segments (The method is able to capture the long term dynamic characteristics of the scene, temporal and structural relationships between different pixels and multiple modalities of dynamic behavior, paragraph [0109], [0110] and see also DeMenthon (frame coordinate, pages 3-4).

As to claim 11, teaches the method of claim 1, further comprising applying a stylization to the single semantic region (note that a simple model keeps a single background image, paragraph [0046]).

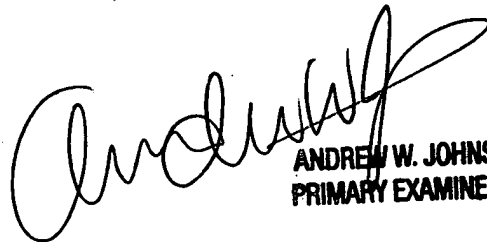
As to claim 12, Mittal teaches the method of claim 11, wherein the stylization comprises a mean shift technique (The Variable Bandwidth Mean shift and Data-Driven Scale Selection, paragraph [0082])

Claims 13-19 differ from claims 1-12 only in that claims 13-19 are computer claim whereas, claims 1-12 are methods claim. Thus, claims 13- 19 are analyzed as previously discussed with respect to claims 1-12 above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



ANDREW W. JOHNS
PRIMARY EXAMINER

Nancy Bitar

12/27/2007